C-A OPERATIONS PROCEDURES MANUAL

7.1.22 Regeneration of Adsorber Bed B

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Hand Processed Changes

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Approved: _____***Signature on File***_____ _____
Collider-Accelerator Department Chairman Date

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7.1.22 Regeneration of Adsorber Bed B

1. Purpose

This procedure provides instructions for regenerating adsorber bed B on the RHIC 25 kW Helium Refrigerator. This procedure shall be performed when adsorber bed B is contaminated and has been taken offline. The steps necessary to take adsorber bed B offline are not covered under this procedure, please reference C-A OPM 7.1.19.

2. Responsibilities

2.1 The Shift Supervisor, or an Operator designated by the Shift Supervisor, is responsible for conducting the procedure and providing documentation in the Cryogenic Control Room Log and in the Cryogenic Valve Log.

2.2 Should a problem arise in the process of regenerating the adsorber bed, the Shift Supervisor shall report to the Technical Supervisor for instructions before continuing.

3. Prerequisites

3.1 The Operator shall be trained by the Shift Supervisor.

3.2 Operator shall be familiar with the refrigerator P&ID drawing 3A995009, the physical location of components on the refrigerator, and the refrigerator control pages found on the CRISP control system. Valves and equipment mentioned in this procedure will be found on drawing 3A995009.

3.3 The regeneration skid must be available for use.

4. Precautions

4.1 If there is liquid helium in the refrigerator pots, all personnel entering the refrigeration wing of 1005R must be ODH Class 1 qualified, have a Personal Oxygen Monitor (POM), and carry an emergency escape pack.

5. Procedure

_____ 5.1 Date _____

_____ 5.2 Ensure the following valves are CLOSED:

Process Valves:

H762A_____ H771A_____

Valves Used for Regeneration/Pure Helium:

H817M_____ H9120M_____

Valves to atmosphere, relief valve header, sample taps or vacuum:

H766M_____	H898M_____	H9093M_____
H767M_____	H899M_____	H9121M_____
H768M_____	H9092M_____	V263M_____

_____ 5.3 Start the regeneration (regen) skid per C-A-OPM 7.1.36, "Regeneration System Normal Operation".

_____ 5.4 Open the following valves:

H163M_____	H9091M_____
H818M_____	H9173M_____
H819M_____	

_____ 5.5 Close regen manifold bypass valve H9100M.

_____ 5.6 Turn on regen skid pre-heater.

_____ 5.7 Monitor sensor TI769.

_____ 5.8 When the TI769 reaches 310°K, continue to regenerate for at least 1 hour. Hygrometer reading must be -20°C to -40°C and improving less than 0.5°C/hr.

_____ 5.9 Turn off regen skid preheater.

_____ 5.10 Open valve H9100M.

_____ 5.11 Close the following valves:

H9091M_____	H818M_____
H819M_____	H163M_____
H9173M_____	

_____ 5.12 Secure the regeneration skid per C-A-OPM 7.1.36.

_____ 5.13 Set up to purge adsorber bed "B" by opening H9120M_____ and H9092M_____.

_____ 5.14 Crack open valves H817_____ and H9093M_____ until an audible purge is heard.

_____ 5.15 Align oxygen monitor to sample valve H768M.

_____ 5.16 Allow adsorber bed "B" to purge for approximately 3 hours at an audible level. Oxygen monitor reading must be less than 10 ppm.

_____ 5.17 Close valves H9093M_____ and H9092M_____.

_____ 5.18 When PI845H reaches approximately 250 PSIA, close valves H817M_____ and H9120M_____.

_____ 5.19 Open inlet valve H762A as a sign that adsorber bed "B" has been regenerated and is ready for service.

6. Documentation

6.1 The check-off lines on the procedure are for place-keeping only. The procedure is not to be initialed or signed, it is not a record.

6.2 The Shift Supervisor shall document the completion of the procedure in the Cryogenics Control Room Log

7. References

7.1 Drawing 3A995009, 25KW Helium Refrigerator P&ID.

7.2 C-A-OPM 7.1.19, "Adsorber Bed "A" Online and Adsorber Bed "B" Offline.

7.3 C-A-OPM 7.1.36, "Regeneration System Normal Operation".

7. Attachments

None